



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,364	10/17/2001	Jonathan A. Nagel	1025	6890

7590

10/05/2005

John P. Maldjian
Senior Patent and Trademark Counsel
TyCom (US) Inc.
250 Industrial Way West, Rm 2B-106
Eatontown, NJ 07724

EXAMINER

TRAN, DZUNG D

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al. US publication no. 2002/0041431.

Regarding claims 1 and 9, Ohshima discloses in figures 4 and 8, an optical communication system comprising: a transmitting station 1 (i.e. OS of Fig. 4) configured to transmit a plurality of optical signals (for example, signals of C band and L band having wavelengths 1550 nm and 1580 nm respectively, see page 7, paragraph 0076) over an optical information channel (e.g., 3, 4₁, ..., 4_n), each of said signals being at an associated wavelength in a range from about 1560 nm to about 1630 nm (for example, each of signals having wavelengths 1550 nm, 1580 nm of C band and L-band is in a range from about 1560 nm to about 1630 nm), wherein said optical information channel comprises at least one erbium doped fiber amplifier (20 of Fig. 4, 8) and at least one Raman amplifier (3 of Fig. 4, 8) configured to amplify said range of wavelengths (page 6, paragraph 0065, page 7, paragraph 0078) and wherein at least one Raman amplifier (3 of Fig. 8) includes multiple Raman pumps (10₁, ..., 10_i), each

Art Unit: 2633

have a different pump wavelengths (page 7, paragraph 0076) and a receiving station 2 (i.e. OR) configured to receive said plurality of optical signals.

Ohshima differs from claim 1 and 9 of the present invention in that he does not specifically disclose the Raman pump wavelength in a range from about 1480nm to about 1520 nm. However, Ohshima discloses the calculation of the driving conditions of the excitation light source ($10_1, \dots, 10_i$) and of the EDFA in accordance with transmission light (page 7, paragraph 0071). Thus, if it is not inherent, it would be obvious that the Raman pump wavelength must be in a range from about 1480nm to about 1520 nm in accordance with the transmission light range from about 1560 nm to about 1630 nm.

At the time of the invention was made, one of ordinary skill in the art would set the Raman pump wavelength in a range from about 1480nm to about 1520 nm in order to provide the suitable Raman amplifying for the transmission line.

3. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al. US publication no. 2002/0041431 in view of 765 Gb/s over 2,000 Km transmission using C and L band EDFA, Matthew Ma et al. OFC'99, Post deadline papers, PD16 (1999), pp1-3.

Regarding claims 5 and 10, as per claims above, Ohshima discloses all the limitations except for optical information channel spans of at least 2,000 km between said transmitter and said receiver. Ma, from the same field of endeavor, discloses an optical transmission system using L-band amplifier that transmit the L band channels

Art Unit: 2633

over the spans of more than 2000 Km (PD16-1, first paragraph PD16-2, last paragraph).

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the teaching of Ma in the system of Ohshima. One of ordinary skill in the art would have been motivated to do this in order to transmit the acceptable optical signal from the transmitter end to the receiver end over the long – haul optical communication system (2000 Km or more) and improve the noise figure (PD16-2- PD16-3).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 5, 9 and 10 have been considered but are moot in view of the new ground(s) of rejection.

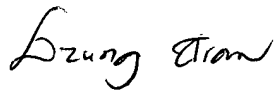
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dzung Tran
09/30/2005